

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property
Organization
International Bureau**



(43) International Publication Date
4 November 2004 (04.11.2004)

PCT

(10) International Publication Number
WO 2004/095359 A3

(51) International Patent Classification⁷: G06K 9/00,
9/62, A61B 6/00

(74) Agent: HAULBROOK, William, R.; Testa, Hurwitz & Thibault, L.L.P., High Street Tower, 125 High Street, Boston, MA 02110 (US).

(21) International Application Number:
PCT/US2004/011820

(22) International Filing Date: 16 April 2004 (16.04.2004)

(25) Filing Language: English

(26) **Publication Language:** English

(30) Priority Data:		
10/418,902	18 April 2003 (18.04.2003)	US
60/560,384	7 April 2004 (07.04.2004)	US

(71) Applicant (for all designated States except US): MEDISPECTRA, INC. [US/US]; 45 Hartwell Avenue, Lexington, MA 02421 (US).

(72) Inventor; and

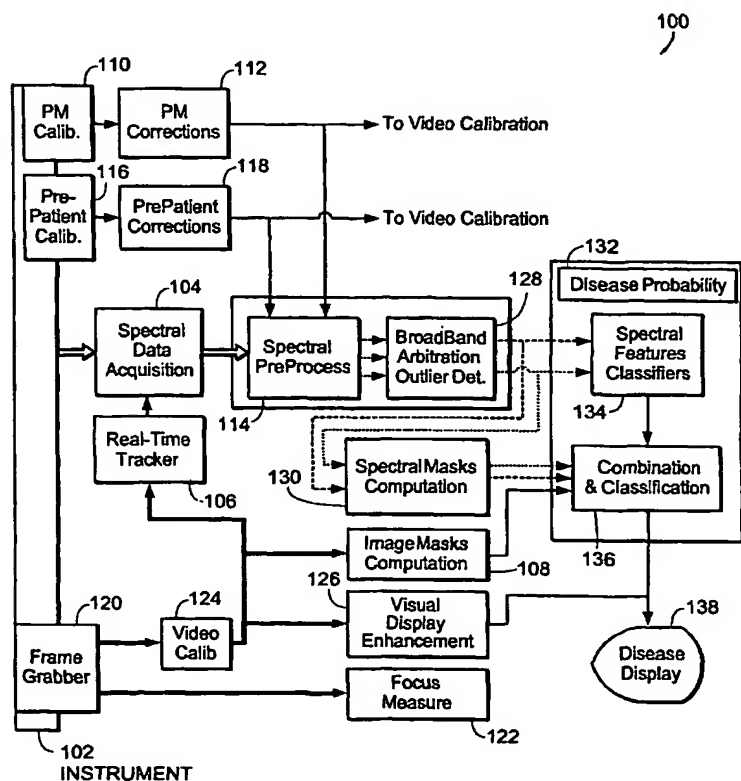
(75) **Inventor/Applicant (for US only): FLEWELLING, Ross, F. [US/US]; 1 Eagle Cliff Road, Chelmsford, MA 01824 (US).**

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,

[Continued on next page]

(54) Title: SYSTEMS FOR IDENTIFYING, DISPLAYING, MARKING, AND TREATING SUSPECT REGIONS OF TISSUE



(57) Abstract: The invention provides systems (102) for automatically localizing areas of disease within a tissue sample using fluorescence spectra, reflectance spectra, and video images (102) obtained from the sample. The invention further provides systems for displaying (138), marking, and treating the identified areas so that healthy surrounding tissue suffers minimal impact upon treatment and/or excision of the diseased tissue (104). The invention facilitates minimally-invasive treatment by accurately directing treatment to only those areas that are identified as diseased.

WO 2004/095359 A3



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
16 December 2004

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11820

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06K 9/00, 9/62; A61B 6/00
US CL : 382/128, 133, 134, 224, 133; 600/476

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 382/128, 133, 134, 224, 133; 600/476

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 6,466,687 B1 (UPPALURI et al) 15 October 2002 (15.10.2002), the entire document.	1-3, 6-9, 11-22, 24-31, 35-36, 39-45, 52, 56- 57 ----- 32-34
Y	US 6,427,082 B1 (NORDSTROM et al) 30 July 2002 (30.07.2002), the entire document.	4-5, 23, 37-38, 46-51, 53-54



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

03 September 2004 (03.09.2004)

Date of mailing of the international search report

29 SEP 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Leo H Boudreau

Telephone No. 703-306-0377

Renai